What is claimed is:

1. A method of manufacturing a composite sheet comprising the steps of:

perforating a reinforcement panel;

providing a mold surface onto which a composite sheet may be formed;

applying at least one outer coat of material onto the mold surface;

applying at least one coat of resin and reinforcement material over the outer coat to form a reinforcement layer;

applying the perforated reinforcement panel to the reinforcement layer; and

forcing the resin into the perforations formed in the reinforcement panel, thereby bonding the reinforcement layer to the reinforcement panel.

2. The method of manufacturing a composite sheet according to Claim 1 wherein the forcing step is accomplished by applying a vacuum to the perforated reinforcement panel.

3. The method of manufacturing a composite sheet according to Claim 1 wherein a polymer sheet is applied to the reinforcement material layer prior to the forcing step.

4. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel.

5. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening diameter in a first side of the reinforcement panel smaller than an opening diameter in a second side of the reinforcement panel, the openings in the first side of the reinforcement panel facing toward the reinforcement layer.

6. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening diameter within the range of from about 1/32 inch to about 1/16 inch in a first side of the reinforcement panel and having an opening diameter within the range of from about 5/32 inch to about 3/16 inch in a second side of the reinforcement panel.

7. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step is accomplished by applying at least one roller against a surface of the reinforcement panel, the at least one roller having a plurality of perforating pins.

8. The method of manufacturing a composite sheet according to Claim 4 wherein the outer coat of material, when cured, displays substantially no visible sink marks on an exposed surface of the outer coat opposite the tapered holes.

9. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step is accomplished by moving the reinforcement panel through three sets of opposed pinch-rollers, one roller of a middle set of the three sets being a perforating mandrel having a plurality of perforating pins.

10. The method of manufacturing a composite sheet according to Claim 6 wherein the perforating step is accomplished by moving the reinforcement panel through three sets of opposed pinch-rollers, one roller of a middle set of the three sets being a perforating mandrel having a plurality of tapered perforating pins.

11. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having a density within the range of from about 4 holes per square foot to about 49 holes per square foot of reinforcement panel.

12. The method of manufacturing a composite sheet according to Claim 1 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the size of each hole and the density of the holes in the reinforcement panel being sufficient to evacuate substantially all air trapped between the resin and the resin and the reinforcement panel.

13. An apparatus for manufacturing a composite sheet comprising:

a perforating mechanism to perforate reinforcement panels;

a mold surface onto which a composite sheet may be formed;

at least one dispensing mechanism to dispense at least one outer coat of material onto the mold surface;

at least one dispensing mechanism to dispense at least one coat of resin over the outer coat;

at least one applicator to apply reinforcement material over the outer coat, wherein the resin and the reinforcement material form a reinforcement layer; and

at least one mechanism to force the resin into the perforations of the perforated reinforcement panel after the reinforcement panel has been applied to the reinforcement layer.

14. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism is comprised of at least one roller having a plurality of perforating pins, the roller being positioned to be applied against a surface of the reinforcement panel.

15. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism is comprised of at least one roller having a plurality of tapered perforating pins, the roller being applied against a surface of the reinforcement panel.

16. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism is comprised of three sets of opposed pinch-rollers, one roller of a middle set of the three sets being a perforating mandrel having a plurality of perforating pins.

17. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism is comprised of three sets of opposed pinch-rollers, one roller of a middle set of the three sets being a perforating mandrel having a plurality of tapered perforating pins.

18. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism is in line with a sander for sanding at least one of a first surface and a second surface of the reinforcement panel.

19. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism creates a plurality of tapered holes in the reinforcement panel.

20. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism creates a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening in a first side of the reinforcement panel smaller than an opening diameter in a second side of the reinforcement panel, the openings in the first side of the reinforcement panel facing toward the reinforcement layer.

21. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism creates a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening diameter within the range of from about 1/32 inch to about 1/16 inch in a first side of the reinforcement panel and having an opening diameter within the range of from about 5/32 inch to about 3/16 inch in a second side of the reinforcement panel.

22. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the perforation mechanism creates a plurality of tapered holes in the reinforcement panel, the tapered holes having a density within the range of about 4 holes per square foot to about 49 holes per square foot of reinforcement panel.

23. The apparatus for manufacturing a composite sheet according to Claim 13 wherein the mechanism to force the resin is a means for applying a vacuum to the perforated reinforcement panel.

24. A composite sheet comprising:

a layer of resin and reinforcement material, the layer of resin and reinforcement material forming a reinforcement layer; and

a perforated reinforcement panel applied to the reinforcement layer, a portion of the reinforcement layer being forced into the perforations of the perforated reinforcement panel, thereby bonding the reinforcement layer to the reinforcement panel.

25. The composite sheet according to Claim 24 further comprising a layer of outer coat material, the layer of resin and reinforcement material being applied between the layer of outer coat material and the reinforcement panel

26. The composite sheet according to Claim 24 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes.

27. The composite sheet according to Claim 24 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having an opening in a first side of the reinforcement panel smaller than an opening diameter in a second side of the reinforcement panel, the openings in the first side of the reinforcement panel facing toward the reinforcement layer.

28. The composite sheet according to Claim 24 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having an opening diameter within the range of from about 1/32 inch to about 1/16 inch in a first side of the reinforcement panel and having an opening diameter within the range of from about 5/32 inch to about 3/16 inch in a second side of the reinforcement panel.

29. The composite sheet according to Claim 24 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having a density within the range of from about 4 holes per square foot to about 49 holes per square foot of reinforcement panel.

30. The composite sheet according to Claim 25 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes.

31. The composite sheet according to Claim 25 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having an opening in a first side of the reinforcement panel smaller than an opening diameter in a second side of the reinforcement panel, the openings in the first side of the reinforcement panel facing toward the reinforcement layer.

32. The composite sheet according to Claim 25 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having an opening diameter within the range of from about 1/32 inch to about 1/16 inch in a first side of the reinforcement panel and having an opening diameter within the range of from about 5/32 inch to about 3/16 inch in a second side of the reinforcement panel.

33. The composite sheet according to Claim 25 wherein the perforations of the perforated reinforcement panel comprise a plurality of tapered holes, the tapered holes having a density within the range of from about 4 holes per square foot to about 49 holes per square foot of reinforcement panel.

34. A method of manufacturing a composite sheet comprising the steps of:

forming perforations in a reinforcement panel;

providing a mold surface onto which a composite sheet may be formed;

applying at least one coat of resin and reinforcement material over the mold to form a reinforcement layer;

applying the perforated reinforcement panel to the reinforcement layer; and

evacuating substantially all air trapped between the resin and the resin and the reinforcement panel through the perforations.

35. The method of manufacturing a composite sheet according to Claim 34 wherein the evacuating step is accomplished by applying a vacuum to the perforated reinforcement panel.

36. The method of manufacturing a composite sheet according to Claim 35 further comprising forcing the resin into the perforations formed in the reinforcement panel, thereby bonding the reinforcement layer to the reinforcement panel.

37. The method of manufacturing a composite sheet according to Claim 36 further comprising the step of applying at least one outer coat of material onto the mold surface prior to the resin.

38. The method of manufacturing a composite sheet according to Claim 35 wherein a polymer sheet is applied to the reinforcement material layer prior to the evacuating step.

38. The method of manufacturing a composite sheet according to Claim 34 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel.

39. The method of manufacturing a composite sheet according to Claim 34 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening diameter in a first side of the reinforcement panel smaller than an opening diameter in a second side of the reinforcement panel, the openings in the first side of the reinforcement panel facing toward the reinforcement layer.

40. The method of manufacturing a composite sheet according to Claim 34 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having an opening diameter within the range of from about 1/32 inch to about 1/16 inch in a first side of the reinforcement panel and having an opening diameter within the range of from about 5/32 inch to about 3/16 inch in a second side of the reinforcement panel.

41. The method of manufacturing a composite sheet according to Claim 39 wherein the perforating step is accomplished by applying at least one roller against a surface of the reinforcement panel, the at least one roller having a plurality of perforating pins.

42. The method of manufacturing a composite sheet according to Claim 34 wherein the perforating step is accomplished by moving the reinforcement panel through three sets of opposed pinch-rollers, one roller of a middle set of the three sets being a perforating mandrel having a plurality of perforating pins.

43. The method of manufacturing a composite sheet according to Claim 34 wherein the perforating step includes creating a plurality of tapered holes in the reinforcement panel, the tapered holes having a density within the range of from about 4 holes per square foot to about 49 holes per square foot of reinforcement panel.